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Effect of Coal on Engineering Properties in Building Materials: Opportunity to Manufacturing Insulating Bricks

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Abstract : The objective of this study is to investigate the effect of adding coal to obtain insulating ceramic product. The preparation of mixtures is achieved with 04 types of different masse compositions, consisting of gray and yellow clay, and coal. Analyses are performed on local raw materials by adding coal as additive. The coal content varies from 5 to 20 % in weight by varying the size of coal particles ranging from 0.25 mm to 1.60 mm. Initially, each natural moisture content of a raw material has been determined at the temperature of 105°C in a laboratory oven. The Influence of low-coal content on absorption, the apparent density, the contraction and the resistance during compression have been evaluated. The experimental results showed that the optimized composition could be obtained by adding 10% by weight of coal leading thus to insulating ceramic products with water absorption, a density and resistance to compression of 9.40 %, 1.88 g/cm3, 35.46 MPa, respectively. The results show that coal, when mixed with traditional raw materials, offers the conditions to be used as an additive in the production of lightweight ceramic products.

Keywords : clay, coal, resistance to compression, insulating bricks
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